Claims:

1. A pressure-released brake assembly for restraining a projectile in a launch tube prior to launch and for automatically releasing the projectile at launch, said brake assembly comprising:

a housing configured for fixed attachment to a projectile, said housing defining a plurality of cavities therein, each of said plurality of cavities having a longitudinal axis that extends substantially radially out from the projectile when said housing is attached thereto wherein at least two of said plurality of cavities are angled towards one another;

a brake pad adjoining said housing and having a plurality of holes formed therethrough with each of said plurality of holes aligned with one of said plurality of cavities in said housing;

a pin sized to loosely fit in each of said plurality of holes and at least a portion of each of said plurality of cavities; and

means for positioning each said pin to reside partially in one of said plurality of holes and partially in a correspondingly aligned one of said plurality of cavities wherein said brake pad is coupled to said housing and wherein, when a launch pressure is generated in the launch

tube, said launch pressure acts on each said pin via said plurality of holes causing said means for positioning to fail whereby each said pin is driven out of engagement with said brake pad so that said brake pad is uncoupled from said housing.

2. A brake assembly as in claim 1 wherein said brake pad is shaped for complementary cooperation with an interior portion of the launch tube.

3. A brake assembly as in claim 1 wherein said brake pad is made from a malleable material.

4. A brake assembly as in claim 1 wherein each of said plurality of cavities has a first portion and a second portion, said first portion adjoining one of said plurality of holes in said brake pad and sized to receive said pin, said second portion adjoining said first portion and having a diameter smaller than that of said pin wherein, when said pin is driven out of engagement with said brake pad, one end of said pin travels in said first portion until reaching said second portion.

5. A brake assembly as in claim 4 wherein each said pin has a counter bore formed therein at said one end thereof.

6. A brake assembly as in claim 1 wherein, for each said pin, said means for positioning comprises:

a wire passing through said housing and said pin when said pin resides partially in said one of said plurality of holes and partially in said correspondingly aligned one of said plurality of cavities; and

a screw threaded into said pin for applying pressure to said wire.

7. A brake assembly as in claim 1 further comprising channels formed in said brake pad for directing said launch pressure into each of said plurality of holes.

8. A brake assembly as in claim 1 further comprising a lubricant disposed about each said pin, and between said brake pad and said housing.

9. A pressure-released brake assembly for restraining a projectile in a launch tube prior to launch and for automatically releasing the projectile at launch, said brake assembly comprising:

a housing configured for fixed attachment to the side a projectile, said housing defining first and second cavities therein that lie in a cross-sectional plane of the launch tube, each of said first and second cavities having a longitudinal axis that extends substantially radially out from the projectile when said housing is attached thereto;

a brake pad adjoining said housing and having first and second holes formed therethrough, said first hole aligned with said first cavity and said second hole aligned with said second cavity;

a first pin sized to loosely fit in said first hole and at least a portion of said first cavity;

a second pin sized to loosely fit in said second hole and at least a portion of said second cavity;

first means for positioning said first pin to reside partially in said first hole and partially in said first cavity; and

second means for positioning said second pin to reside partially in said second hole and partially in said second cavity wherein said brake pad is coupled to said housing by

said first and second pins, and

wherein, when a launch pressure is generated in the launch tube, said launch pressure acts on said first pin via said first hole and said second pin via said second hole, wherein said first means and said second means fail whereby said first pin and said second pin are driven out of engagement with said brake pad so that said brake pad is uncoupled from said housing.

10. A brake assembly as in claim 9 wherein said brake pad is shaped for complementary cooperation with an interior portion of the launch tube.

11. A brake assembly as in claim 9 wherein said brake pad is made from a malleable material.

12. A brake assembly as in claim 9 wherein each of said first and second cavities has a decreased diameter portion, one end of which prevents further movement of a respective one of said first and second pins after they are driven out of engagement with said brake pad.

13. A brake assembly as in claim 12 wherein each of said first and second pins has a counter bore formed therein at

one end thereof that encounters said one end of said decreased diameter portion.

14. A brake assembly as in claim 9 wherein, prior to generation of said launch pressure,

said first means comprises a first wire passing through said housing and said first pin, and a first screw threaded into said first pin for applying pressure to said first wire, and

said second means comprises a second wire passing through said housing and said second pin, and a second screw threaded into said second pin for applying pressure to said second wire.

15. A brake assembly as in claim 9 further comprising channels formed in said brake pad for directing said launch pressure into each of said first and second holes.

16. A brake assembly as in claim 9 further comprising a lubricant disposed (i) about said first pin and said second pin, and (ii) between said brake pad and said housing.

17. A pressure-released brake assembly for restraining a projectile in a launch tube prior to launch and for automatically releasing the projectile at launch, said brake assembly comprising:

a housing configured for fixed attachment to the side a projectile, said housing defining first and second cavities therein that lie in a cross-sectional plane of the launch tube, each of said first and second cavities having a longitudinal axis that extends substantially radially out from the projectile when said housing is attached thereto wherein said first and second cavities are angled towards one another, each of said first and second cavities defined by a large diameter portion and a decreased diameter portion adjoining said large diameter portion;

a brake pad adjoining said housing and having first and second holes formed therethrough, said first hole aligned with said large diameter portion of said first cavity and said second hole aligned with said large diameter portion of said second cavity;

a first pin sized to loosely fit in said first hole and said large diameter portion of said first cavity, said first pin having a diameter that is larger than said decreased diameter portion of said first cavity;

a second pin sized to loosely fit in said second hole

and said large diameter portion of said second cavity, said second pin having a diameter that is larger than said decreased diameter portion of said second cavity;

first means for positioning said first pin to reside partially in said first hole and partially in said large diameter portion of said first cavity; and

second means for positioning said second pin to reside partially in said second hole and partially in said large diameter portion of said second cavity wherein said brake pad is coupled to said housing by said first and second pins, and

wherein, when a launch pressure is generated in the launch tube, said launch pressure acts on said first pin via said first hole and said second pin via said second hole, wherein said first means and said second means fail due to said launch pressure whereby said first pin and said second pin are driven out of engagement with said brake pad so that said brake pad is uncoupled from said housing.

18. A brake assembly as in claim 17 wherein said brake pad is shaped for complementary cooperation with an interior portion of the launch tube.

19. A brake assembly as in claim 17 wherein said brake pad is made from a malleable material.

20. A brake assembly as in claim 17 wherein each of said first and second pins has a counter bore formed therein at one end thereof that faces said decreased diameter portion of said first and second cavities, respectively.

21. A brake assembly as in claim 17 wherein, prior to generation of said launch pressure,

said first means comprises a first wire passing through said housing and said first pin, and a first screw threaded into said first pin for applying pressure to said first wire, and

said second means comprises a second wire passing through said housing and said second pin, and a second screw threaded into said second pin for applying pressure to said second wire.

22. A brake assembly as in claim 17 further comprising channels formed in said brake pad for directing said launch pressure into each of said first and second holes.

23. A brake assembly as in claim 17 further comprising a lubricant disposed (i) about said first pin and said second pin, and (ii) between said brake pad and said housing.